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(19)(CA) **CANADIAN PATENT (12)**

(54) Lacrosse Stick

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(30) (US) U.S.A. 414,258 1989/09/29

(57) 20 Claims

Canada

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LACROSSE STICK

FIELD OF THE INVENTION

This invention relates to lacrosse sticks and more particularly to new and novel means for attaching a lacrosse stick head to a lacrosse stick handle to provide advantages over the prior art. The invention also relates to new and novel means for attaching a webbing to a lacrosse stick head to provide advantages over the prior art.

BACKGROUND OF THE INVENTION

In the early prior art, lacrosse sticks were customarily made of wood, usually hickory, shaped by American Indians with whom the game originated. Such lacrosse sticks lacked uniformity as to quality, strength, weight and feel in the hands of a player.

To overcome the disadvantages of the prior art, great strides have been made in the recent past in the construction of lacrosse stick heads and handles. For example, U.S. patents Nos. 3,507,495; 3,822,062 and 3,905,088 to Tucker et al and U.S. patent No. 4,034,984 to Crawford et al disclose elastomeric lacrosse stick heads and parts therefore which are highly resilient and have dramatically revolutionized the sport of lacrosse.

Additionally, U.S. patents Nos. 4,739,994; 4,037,841 and 4,206,918 to Lewis disclose novel plastic and metal lacrosse stick handles which have further enhanced the quality of lacrosse sticks.

Accordingly, it is now common for lacrosse stick heads and handles to be interchangeable in order to suit the needs of a player or for repair of a broken head or handle.

The prior art teaches that the head and handle of a lacrosse stick are attached together by means of a pin or screw.

While the prior art fastening means have proved suitable, other



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fastening means are desirable to allow for quicker interchange of a head and handle. Moreover, occasional problems occur with the prior art fastening means including the stripping of the head of the screw, preventing easy removal of the head from the handle, or 5 where the hole in the handle is stripped and no longer properly engages the screw. The present invention overcomes these disadvantages of the prior art.

Further, the prior art in abovenoted U.S. patent No. 4,034,984 teaches the attachment of a webbing to a lacrosse stick head through tab means. As apparent from FIGURE 2 of the 10 '984 patent, each tab comprises a string hole, requiring that the webbing be strung through the holes. This patent provides a convenient method of attaching the webbing, particularly a mesh webbing. However, at times the stringing of the webbing through 15 the holes is time-consuming. The present invention avoids this time-consuming procedure.

GENERAL DESCRIPTION OF THE INVENTION

The invention in one aspect seeks to provide a new and novel means of attaching a lacrosse stick head to a handle without 20 the need for the conventional screw or pin fastening means in order to overcome the disadvantages of the prior art.

Further the invention seeks to provide a retainer means for attaching a lacrosse stick head to a handle wherein the 25 retainer means may be a snap-in retainer means or may be integral with the head.

Still further the invention seeks to provide a retainer means for attaching a lacrosse stick head to a handle which is constructed to include a stop means for holding a lacrosse ball in place in the head.

Further still the invention seeks to provide a clip mounted to the handle which will connectively engage the head for attaching the head to the handle.

Still further the present invention seeks to provide a new and novel means of attaching a webbing to a lacrosse stick head which is rapid and secure.

The invention in one aspect provides a lacrosse stick comprising a head having a generally V-shaped frame defined by two side walls, a transverse stop extending between the side walls and cooperating with a throat portion and a transverse wall joining the ends of the side walls opposite the transverse stop. A retainer means having one or more prongs extends longitudinally from the head for attaching the head to a handle, the handle having one or more slots for receiving the prongs, whereby the prongs connectively engage the slots to attach the head to the handle.

Another aspect of the invention provides a lacrosse stick snap-in retainer means for attaching a lacrosse stick head to a lacrosse stick handle having slot means in one end of the handle comprising a base member adapted to fit flush with the head and having one or more prongs extending longitudinally from the base member and adapted to connectively engage the slot means in the handle.

Still further the invention provides a lacrosse stick comprising a handle having a clip fixedly mounted at one end of the handle and having protuberances extending outwardly from the clip and adapted to engage a lacrosse stick head and a head having a throat portion wherein when the handle with the clip is inserted in the throat portion, the protuberances connectively engage the throat portion to attach the handle to the head.

Another aspect of the invention provides a head for a lacrosse stick comprising a generally V-shaped frame adapted to receive a web, the frame being defined by two side walls joined at a juncture and diverging therefrom with a transverse wall joining the ends of the side walls opposite of the juncture. Tab means are positioned on at least the side walls for securement of a web onto the frame, the tab means being integrally formed with at least the side walls and constructed and arranged to have a slot therein to permit a web string to be snapped into the tab, the slot being constructed and arranged to retain the string.

Other aspects and advantages of the present invention will become apparent from the following general and detailed description of the invention taken in conjunction with the appended drawing.

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DRAWING AND DETAILED DESCRIPTION

In the drawing,

FIGURE 1 is a first embodiment illustrating a front exploded elevational view of a lacrosse stick head, partly in section, the snap-in retainer, the handle, the web tab arrangement and construction;

FIGURE 2 is a front view of the embodiment of FIGURE 1, partly in section, showing the components locked together;

FIGURE 3 is a perspective view of one embodiment of the snap-in retainer means of the invention;

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FIGURE 4 is a perspective view of another embodiment of the snap-in retainer means of the invention having a stop means;

FIGURE 5 is a side view, partly in section, of the lacrosse stick showing the head attached to the handle by the snap-in retainer means of FIGURE 4;

FIGURE 6 is a perspective view of a clip for attaching the head to the handle according to another embodiment of the invention; and

5 FIGURE 7 is a sectional view showing a lacrosse stick head and handle attached by the clip of FIGURE 6.

10 The illustrated embodiment of the invention is a lacrosse stick generally designated 10 which includes a head generally designated 11 and a handle generally designated 12. The head is provided with webbing or netting partially shown in FIGURE 1 and generally indicated at 13.

15 The head 11 is constructed similarly to a head disclosed in Tucker et al U.S. Patent No. 3,507,495 and shown also in later Tucker et al U.S. Patent No. 3,822,062. The head 11 is, in general, a closed frame-like construction of somewhat V-shaped design, preferably substantially symmetrical. The lower end of the head is formed as a throat 14 from 20 which two side walls 15, 15 are inclined and diverged upwardly and outwardly. The upper ends of the side walls 15, 15 are connected by a transverse top or end wall 16 which merges with the side walls through intervening smoothly curved portions 17, 17.

25 A transverse stop means 18 extends between the side walls 15, 15 and cooperates with throat 14 and adjacent portions of the side walls to facilitate the connection of the head 11 and handle 12. The stop 18 has an opening 19

for receiving retainer means 20 of the invention as described in detail hereafter.

The Tucker et al U.S. patent No. 3,882,062 more particularly discloses an arrangement which may be embodied in the 5 webbing 13 shown in FIGURE 1 by way of example and as previously noted in the background herein, the Crawford et al U.S. patent No. 4,034,984 discloses and claims means for attachment of the webbing on the head as shown in FIGURE 1, although it is noted that the tab means 13a herein are open to allow for quicker 10 attachment of the webbing, a significant improvement over the teachings of the prior art.

The head 11, aside from the webbing 13 but including the tab means 13a, is preferably formed as a unitary molding of a polymer material characterized by toughness, high impact 15 resistance and good flexibility, as well as other desirable properties explained in the aforesaid U.S. patent No. 3,507,495. A presently preferred material is a nylon resin marketed under the DuPont trade mark ZTEL ST 801. This polymer has outstanding impact resistance and good moldability permitting injection 20 molding. Unreinforced ZTEL ST 801, with a water content of 0.2%,

at 73°F using the ASTM test method D638 has a tensile strength of 7800 psi, a yield strength of 7800 psi and an elongation at break of 40%. It has a specific gravity of 1.09 using the ASTM test method D792 and a Rockwell hardness of R112 using ASTM test method D785. Another preferred material is an injection moldable polymer material sold under the DuPont trade mark HYTREL. Still another material suitable for making head 11 is the reaction product of Adiprene L315 and 4,4'-methylene-bis-(2-chloroaniline) using the formulation and manufacturing procedure as set forth in the 10 aforesaid U.S. patent No. 3,507,495, the disclosure of which the '495 patent may be referred to for further details thereof. The abovenoted materials are examples of materials suitable for constructing the head found to cooperate admirably with the handle.

15 The handle 12 may be formed of any suitable material including a plastic, metal or wood. Preferred handles for use with the present invention are disclosed in U.S. patent Nos. 4,739,994; 4,206,918 and 4,037,841 to Lewis which may be referred to for further details thereof. A preferred handle 20 as shown in the drawing herein is a hollow

octagonal handle having an elliptical cross-section made of plastic.

The present invention, as above-noted, is in one aspect related to attachment of the head 11 to the handle 12. A first embodiment of the invention, shown in FIGURES 1-6, utilizes a retainer means 20 for attaching the head 11 to handle 12. The retainer means 20 shown in the drawing is a snap-in retainer separate from the head. However, it is understood that the retainer means 20 may be molded integrally with the head 11. As apparent from the drawing, retainer means 20 fits flush with the transverse stop 18 and partly functions as the stop, and at times in this disclosure will be referred to as the stop.

The retainer means 20 comprises a base 22 having longitudinally extending prongs 24, 24. As noted above, base 22 is shaped to fit flush with the transverse stop 18 of head 11. The prongs 24, 24 include ears 26, 26 constructed and arranged to engage handle 12. Prongs 24, 24 are constructed such that they are flexible and extend outwardly and away from each other at a distance greater than the diameter of opening 30 of handle 12. Retainer means 20 is preferably made of a plastic, although other suitable materials may be used. Further, it is understood that a different number of prongs may be utilized without departing from the scope of the invention.

Handle 12 includes an opening 30 for insertion of the prongs 24, 24 and slots 32, 32 for connectively engaging prongs 24, 24. Accordingly, to attach head 11 to handle 12, snap-in retainer means 20 5 is seated flushly on the transverse stop 18 with prongs 24, 24 extending through opening 19 of head 11 and ears 26, 26 connectively engage slots 32, 32 of handle 12.

Referring to FIGURES 4 and 5, retainer 10 means 20 may include a lip 28 which functions as a stop means to hold a lacrosse ball in place in the head 11. Lip 28 may include the trademark of the product manufacturer.

A second embodiment of the invention is 15 disclosed in FIGURES 6 and 7. This embodiment includes a head 40 and a handle 42 constructed similarly to head 11 and handle 12. In this embodiment, handle 42 includes a clip 44 mounted thereon by inwardly extending protuberances 46 and further includes outwardly extending protuberances 48. Head 40 includes throat portion 50 made of plastic or other suitable material adapted to receive handle 40 20 with clip 44. Accordingly, when handle 42 is inserted in throat portion 50 of head 40, protuberances 48 become imbedded in throat portion 50 to attach head 40 to handle 42. In the alternative, throat 50 may 25 include annular ridges (not shown) adapted to engage protuberances 48.

In a further embodiment of the invention, as seen primarily from FIGURES 1 and 2, the lacrosse stick head includes tab means 13a which have a slot which permits a string of the webbing, such as a mesh webbing, to be snapped into the slot. As illustrated, the slot is positioned so as to securely retain the webbing once the webbing string is snapped into the tab. As further shown in FIGURE 1, it may be desirable to include at least one tab on each side wall near the transverse end of the stick which does not have a slot, but which is designed to be strung 10 with a retaining string.

Various modifications will be recognized by those skilled in the art based on the present teaching. Thus, although only select preferred embodiments have been specifically illustrated and described herein, it is to be understood that various modifications and embodiments can be utilized to provide the lacrosse stick of the present invention without departing from the spirit of the invention and the scope of the appended claims. 15

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A lacrosse stick comprising a head having a generally V-shaped frame defined by two side walls, a transverse stop extending between said side walls and cooperating with a throat portion, a transverse wall joining the ends of said side walls opposite the transverse stop, and a retainer means having one or more prongs extending longitudinally from said head for attaching said head to a handle and a handle having one or more slots for receiving said prongs, whereby said prongs connectively engage said slots to attach said head to said handle.
2. A lacrosse stick according to claim 1 wherein said retainer means includes a stop means for holding a lacrosse ball in place in said head.
3. A lacrosse stick according to claim 1 wherein said retainer means is integral with said head.
4. A lacrosse stick according to claim 3 wherein said retainer means includes a stop means for holding a lacrosse ball in place in said head.
5. A lacrosse stick according to claim 1 wherein said head includes an opening in the transverse stop portion of said head for receiving and removably holding said retainer means and said retainer means is a snap-in retainer means.

6. A lacrosse stick according to claim 5 wherein said retainer means includes a stop means for holding a lacrosse ball in place in said head.

7. A lacrosse stick according to claim 1, wherein said handle is octagonal.

8. A lacrosse stick comprising a head having a generally V-shaped frame defined by two side walls, a transverse stop extending between said side walls and cooperating with a throat portion, a transverse wall joining the ends of said side walls opposite the transverse stop, and a retainer means having a base and two or more longitudinally extending prongs for attaching the head to a handle and a hollow handle having two or more slots for receiving said prongs of said retainer means, whereby said prongs of said retainer means connectively engage said slots of said handle to attach said head to said handle.

9. A lacrosse stick according to claim 8 wherein said retainer means includes a stop means for holding a lacrosse ball in place in said head.

10. A lacrosse stick according to claim 8 wherein said retainer means is integral with said head.

11. A lacrosse stick according to claim 10 wherein said retainer means includes a stop means for holding a lacrosse ball in place in said head.

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12. A lacrosse stick according to claim 8 wherein said head includes an opening in the transverse stop portion of said head for receiving and removably holding said retainer means and said retainer means is a snap-in retainer means.

13. A lacrosse stick according to claim 12 wherein said retainer means includes a stop means for holding a lacrosse ball in place in said head.

14. A lacrosse stick according to claim 8 wherein said handle is octagonal.

15. A lacrosse stick snap-in retainer means for attaching a lacrosse stick head to a lacrosse stick handle having slot means in one end of said handle comprising a base member adapted to fit flush with said head and having one or more prongs extending longitudinally from said base member and adapted to connectively engage said slot means in said handle.

16. A lacrosse stick comprising a handle having a clip fixedly mounted at one end of said handle and having protuberances extending outwardly from said clip and adapted to engage a lacrosse stick head and a head having a throat portion wherein when said handle with said clip is inserted in said throat portion said protuberances connectively engage said throat portion to attach said handle to said head.

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17. A head for a lacrosse stick comprising a generally V-shaped frame adapted to receive a web, said frame being defined by two side walls joined at a juncture and diverging therefrom, a transverse wall joining the ends of said side walls opposite of
5 said juncture and tab means positioned on at least said side walls for securement of a web onto said frame, said tab means being integrally formed with at least said side walls and constructed and arranged to have a slot therein to permit a web string to be snapped into said tab, said slot being constructed
10 and arranged to retain said string.

18. The head for a lacrosse stick according to claim 17 wherein said tab means are also on said transverse wall.

19. A lacrosse stick comprising a head according to claim 17, a web attached to said head and a handle fitted to the juncture of said side walls.

20. A lacrosse stick head according to claim 17, 18 or 19 wherein said tabs are constructed and arranged with said side walls to project inwardly thereof and being substantially flush with the top surface thereof.



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FIG. 1

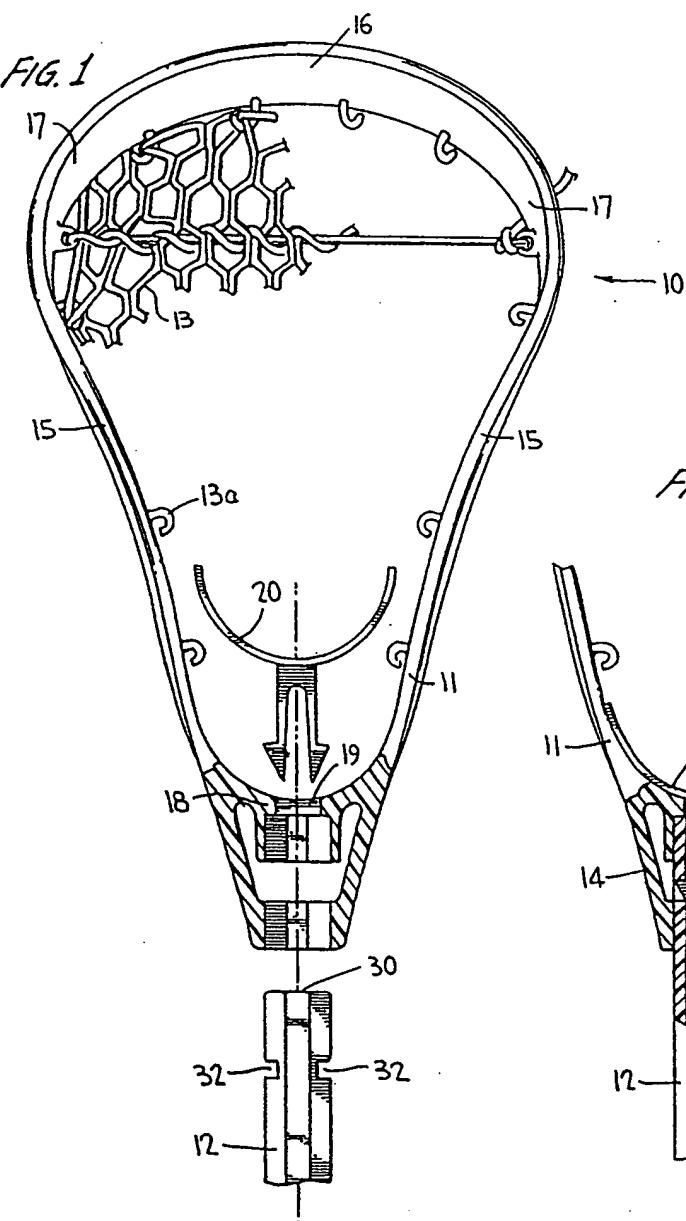
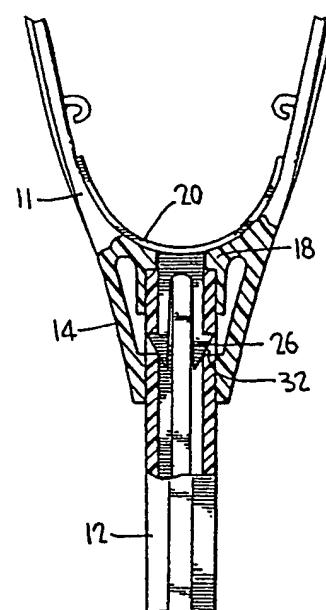


FIG. 2



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FIG. 3

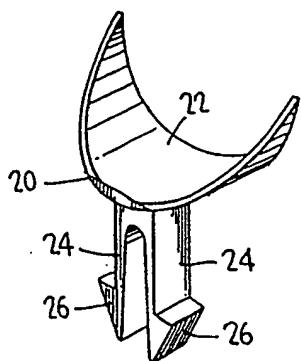


FIG. 4

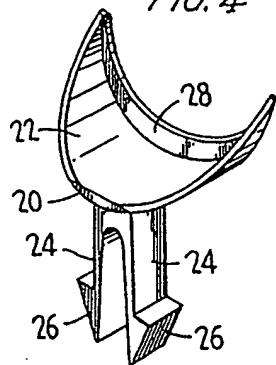


FIG. 5

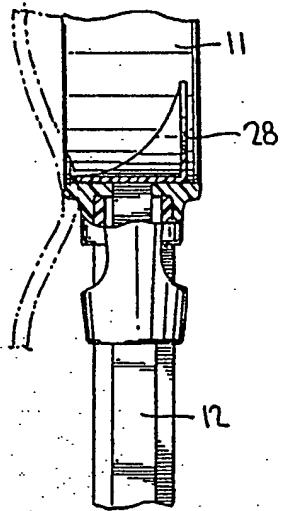


FIG. 6

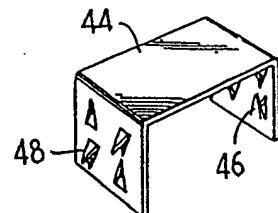
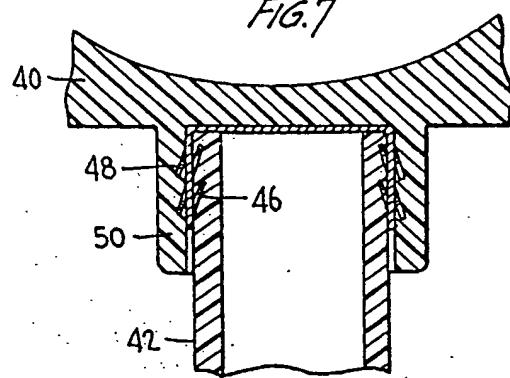


FIG. 7



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